

CLAIMS

1. A spatial position sharing system, comprising a first device and a second device, the first device comprising

5 current position information generating means for sequentially generating current position information for a position shared object in virtual space,

 predicted future position information generating means for sequentially generating predicted future position information for
10 the position shared object in the virtual space; and

 information transmission means for sequentially transmitting the generated current position information and predicted future position information,

 the second device comprising

15 information receiving means for receiving the current position information and the predicted future position information transmitted from the first device; and

 estimated current position information generating means for sequentially generating estimated current position information for
20 the position shared object in the virtual space based on the received current position information and predicted future position information.

2. The system of claim 1, wherein the current position
25 information represents current time, and position of the position shared object in the virtual space at that time.

3. The system of claim 1 or claim 2, wherein the predicted future position information represents predicted position of the position shared object in the virtual space.

5 4. The system of claim 3, wherein the predicted future position information also represents a future time at which the position shared object is at the predicted position in the virtual space.

10 5. The system of claim 4, wherein the predicted future position information generating means determines the future time based on communication conditions between the first and second devices.

15 6. The system of any one of claim 1 to claim 5, wherein the estimated current position information represents an estimation result for current position of the position shared object in the virtual space.

20 7. The system of any one of claim 1 to claim 6, wherein the current position information generating means sequentially generates the current position information based on operation information input by a user of the first device, and the predicted future position information generating means sequentially
25 generates the predicted future position information based on the operation information.

8. The system of any one of claim 1 to claim 7, wherein the predicted future position information generating means generates the predicted future position information based on the current position information generated by the current position information generating means.

9. The system of claim 8, further provided with current position information storage means for multiply storing the current position information generated by the current position information generating means, and the predicted future position information generating means generating the predicted future position information based on a plurality of items of the current position information stored in the current position information storage means.

10. The system as disclosed in any one of claim 1 to claim 9, wherein the estimated current position information generating means newly generates the estimated current position information based on already generated estimated current position information.

11. The system of claim 10, wherein the estimated current position information generating means generates dummy estimated current position information for the position shared object in the virtual space based on the received current position information and the predicted future position information, and newly generates estimated current position information based on already generated estimated current position information and the dummy estimated

current position information.

12. The system of claim 11, wherein the estimated current position information generating means generates a position of an internal dividing point or an external dividing point of a position represented by the received current position information or a position represented by the predicted future position information as the dummy estimated current position information.

13. The system of any one of claim 1 to claim 12, wherein the first device further comprises current attitude information generating means for sequentially generating current attitude information for the position shared object in the virtual space;

predicted future attitude information generating means for sequentially generating predicted future attitude information for the position shared object in the virtual space; and

attitude information transmission means for sequentially transmitting the generated current attitude information and the predicted future attitude information,

the second device further comprising

attitude information receiving means for receiving the current attitude information and the predicted future attitude information transmitted from the first device; and

estimated current attitude information generating means for sequentially generating estimated current attitude information for the position shared object in the virtual space based on the received current attitude information and predicted future attitude

information.

14. A special position sharing device, comprising:

current position information generating means for
5 sequentially generating current position information for a position
shared object in virtual space;

predicted future position information generating means for
sequentially generating predicted future position information for
the position shared object in the virtual space; and

10 information transmission means for sequentially transmitting
the generated current position information and predicted future
position information.

15. A spatial position sharing device comprising:

15 information receiving means for receiving current position
information for a position shared object in virtual space and
predicted future position information of the position shared object
in the virtual space sequentially generated in another device and
sequentially transmitted from the other device; and

20 estimated current position information generating means for
sequentially generating estimated current position information for
the position shared object in the virtual space based on the received
current position information and the predicted future position
information.

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16. A program for causing a computer to function as

current position information generating means for

sequentially generating current position information for a position shared object in virtual space;

predicted future position information generating means for sequentially generating predicted future position information for
5 the position shared object in the virtual space; and

information transmission means for sequentially transmitting the generated current position information and predicted future position information.

10 17. A program for causing a computer to function as
information receiving means for receiving current position information for a position shared object in virtual space and predicted future position information of the position shared object in the virtual space sequentially generated in another device and
15 sequentially transmitted from the other device; and

estimated current position information generating means for sequentially generating estimated current position information for the position shared object in the virtual space based on the received current position information and the predicted future position
20 information.

18. A spatial position sharing method, comprising:

a current position information generating step for, in a first device, sequentially generating current position information of
25 a position shared object in virtual space;

a predicted future position information generating step for, in the first device, sequentially generating predicted future

position information of the position shared object in the virtual space;

an information transmission step for, in the first device, sequentially transmitting the generated current position
5 information and predicted future position information;

an information receiving step for, in a second device, receiving the current position information and the predicted future position information transmitted from the first device; and

an estimated current position information generating step for,
10 in the second device, sequentially generating estimated current position information for the position shared object in the virtual space based on the received current position information and the predicted future position information.

15 19. A spatial position sharing method, comprising:

an information receiving step for receiving current position information for a position shared object in virtual space and predicted future position information of the position shared object in the virtual space sequentially generated in another device and
20 sequentially transmitted from the other device; and

an estimated current position information generating step for sequentially generating predicted future position information for the position shared object in the virtual space based on the received current position information and the predicted future position
25 information.

20. A data sharing system comprising a first device and a second device, the first device comprising

current data generating means for sequentially generating current data,

5 predicted future data generating means for sequentially generating predicted future data; and

data transmission means for sequentially transmitting the generated current data and predicted future data,

the second device comprising

10 data receiving means for receiving the current data and the predicted future data transmitted from the first device; and

estimated current data generating means for sequentially generating estimated current data based on the received current data and predicted future data.

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21. A data sharing system, comprising:

current data generating means for sequentially generating current data;

20 predicted future data generating means for sequentially generating predicted future data; and

data transmission means for sequentially transmitting the generated current data and the predicted future data.

22. A data sharing system, comprising:

25 data receiving means for receiving current data and predicted future data sequentially generated in another device and sequentially transmitted from the other device; and

estimated current data generating means for sequentially generating estimated current data based on the received current data and the predicted future data.

5 23. A program for causing a computer to function as:
current data generating means for sequentially generating current data;
predicted future data generating means for sequentially generating predicted future data; and
10 data transmission means for sequentially transmitting the generated current data and the predicted future data.

24. A program for causing a computer to function as:
data receiving means for receiving current data and predicted
15 future data sequentially generated in another device and sequentially transmitted from the other device; and
estimated current data generating means for sequentially generating estimated current data based on the received current data and the predicted future data.

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25. A data sharing method comprising:
a current data generating step for, in a first device, sequentially generating current data,
a predicted future data generating step for, in the first
25 device sequentially generating predicted future data;
a data transmission step for, in the first device, sequentially transmitting the generated current data and the

predicted future data,

a data receiving step for, in a second device, receiving the current data and the predicted future data transmitted from the first device; and

5 an estimated current data generating step for, in the second device, sequentially generating estimated current data based on the received current data and predicted future data.

26. A data sharing method comprising:

10 a data receiving step for receiving current data and predicted future data sequentially generated in another device and sequentially transmitted from the other device; and

an estimated current data generating step for sequentially generating estimated current data based on the received current
15 data and predicted future data.

27. A network game system, including a server and a plurality of clients, wherein:

the plurality of clients respectively comprise
20 space data storage means for storing space data representing virtual space; and

position information transmission means for transmitting position information corresponding to the client for the virtual space to the server, and the server comprises

25 position information receiving means for receiving position information from the plurality of clients;

client specifying means for specifying some from among the

plurality of clients; and

position information transfer means for transferring all or some of the position information received from the plurality of clients to the plurality of clients, while restricting transfer
5 of position information received from clients that have not been specified by the client specifying means to clients that have been specified by the client specifying means, the plurality of clients respectively comprising

transfer data receiving means for receiving position
10 information transferred from the server, and

game processing means for executing a game process based on position information received by the transfer data receiving means and space data stored in the space data storage means.

15 28. The system of claim 27, wherein

the position information transfer means separately transfers position information received from clients specified by the client specifying means, and position information received from clients not specified by the client specifying means, to the clients that
20 have not been specified by the client specifying means, and

the game processing means separately displays an image relating to position information transmitted from clients specified by the client specifying means and an image relating to position information transmitted from clients not specified by the client
25 specifying means.

29. The system of claim 28, wherein the game processing means limits interference processing between objects arranged at position

represented by position information transmitted from clients that are specified by the client specifying means, and objects arranged at positions represented by position information transmitted by clients that are not specified by the client specifying means.

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30. The system of any one of claim 27 to claim 29, further comprising specification cancellation means for canceling specification by the client specifying means, wherein, when specification by the client specifying means for a client containing
10 the game processing means is canceled, the game processing means limits interference processing for objects arranged at positions represented by position information corresponding to the client, and objects arranged at positions represented by position information transmitted from clients that are not specified by the
15 client specifying means, until a specified time.

31. A control method for a network game system comprising a server and a plurality of clients, comprising:

a position information transmission step, in each client, for
20 transmitting position information corresponding to the client in virtual space to the server;

a position information receiving step, in the server, for receiving position information transmitted from the plurality of clients;

25 a client specifying step, in the server, for specifying some of the plurality of clients;

a position information transfer step, in the server, for

transferring all or some of the position information received from the plurality of clients to the plurality of clients, while restricting transfer of position information received from clients that have not been specified in the client specifying step to clients
5 that have been specified in the client specifying step;

a transferred data receiving step, in each client, for receiving position information transferred from the server; and

a game processing step, in each client, for executing game processing based on position information received in the
10 transferred data receiving step and space data representing the virtual space.

32. A client, for a network game, used in a network game in which virtual space is shared by a plurality of clients, for causing
15 movement of objects corresponding to each client in the virtual space, comprising:

input means for inputting signals;

mode determining means for determining whether an operating mode of the client is an object operation mode or a message input
20 mode;

first position information generating means for, in the object operation mode, generating position information relating to a position of an object corresponding to the client based on signals input by the input means;

25 second position information generating means for, in the message input mode, generating position information relating to position of an object corresponding to the client while limiting

an extent that the position information is based on signals input by the input means, instead of the first position generating means;

position information transmission means for transmitting the position information generated by the first or second position
5 information generating means;

message information generating means for, in the message input mode, generating message information based on signals input by the input means; and

message information transmission means for transmitting the
10 message information generated by the message information generating means.

33. The client of claim 32, wherein the second position information generating means generates position information
15 relating to position of an object corresponding to the client so as to suppress variation in game conditions.

34. The client of claim 33, wherein the second position information generating means generates position information
20 relating to position of an object corresponding to the client, based on a distance between the object corresponding to the client and an object corresponding to another client.

35. A program, for causing a computer to function as a client,
25 for a network game, used in a network game in which virtual space is shared by a plurality of clients, for causing movement of objects corresponding to each client in the virtual space, the program

causing the computer to function as:

input means for inputting signals;

mode determining means for determining whether an operating
mode of the client is an object operation mode or a message input
5 mode;

first position information generating means for, in the
object operation mode, generating position information relating
to a position of an object corresponding to the client based on
signals input by the input means;

10 second position information generating means for, in the
message input mode, generating position information relating to
position of an object corresponding to the client while limiting
an extent that the position information is based on signals input
by the input means, instead of the first position generating means;

15 position information transmission means for transmitting the
position information generated by the first or second position
information generating means;

message information generating means for, in the message
input mode, generating message information based on signals input
20 by the input means; and

message information transmission means for transmitting the
message information generated by the message information generating
means.

36. A control method, for a client for, in a network game, used in a network game in which virtual space is shared by a plurality of clients, causing movement of objects corresponding to each client in the virtual space, comprising:

5 a mode determining step for determining whether an operating mode of the client is an object operation mode or a message input mode;

 a first position information generating step for, in the object operation mode, generating position information relating
10 to a position of an object corresponding to the client based on signals input by input means;

 a second position information generating step for, in the message input mode, generating position information relating to position of an object corresponding to the client while limiting
15 a degree to which the position information is based on signals input by the input means, instead of the first position generating step;

 a position information transmission step for transmitting the position information generated in the first or second position information generating steps;

20 a message information generating step for, in the message input mode, generating message information based on signals input by the input means; and

 a message information transmission step for transmitting the message information generated in the message information generating
25 step.

37. An information storage medium storing the program of claim 16, claim 17, claim 23, claim 24 and claim 35.